



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,322	03/30/2005	Dorothee Martin	259732US0PCT	7539
22850	7590	11/26/2008		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER				
BREVAIL, ELMITO				
ART UNIT		PAPER NUMBER		
2889				
NOTIFICATION DATE		DELIVERY MODE		
11/26/2008		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

# Office Action Summary

Application No.

10/509,322

Applicant(s)

MARTIN ET AL.

Examiner

ELMITO BREVAL

Art Unit

2889

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18, 26 and 27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18, 26 and 27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 August 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-089)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

The response filed on 08/14/2008 has been entered.

Claims 1-18 and 26-27 are pending.

The previous rejections have been withdrawn.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 8-18, and 26-27 are rejected under 35 U.S.C. 103(a) as being obvious over Martin et al., (US. Pub: 2003/0137230) of record by the applicant in view of Van Gorkom et al., (US. Pat: 5,903,094) hereinafter "Van".

**Regarding claim 1**, Martin ('230) discloses a spacer comprising: a core which does not exhibit electronic conductivity ([00030]) and wherein the glass spacer is capable of providing an electronic conductivity at 50°C of 10exp-13 to 10 ohm-1.cm-1 ([0016]), and also the spacer is capable of maintaining a space between two substrate (abstract; [0014]) formed from glass sheets ([0002]) over the entire area of the sheet substrates ([0002]), in the surface of the spacer is at least partly electronically conducting ([0030]), and the shape and the constituent material of the spacer provide thermo-mechanical integrity of the substrates in the device ([0040], 'pillars shape' and the materials disclose for example in paragraphs [0021]-[0025]).

However, Martin ('230) does not disclose at least one coating comprising of a glass exhibiting electronic conductivity coated on the core.

Further regarding claim 1, Van ('094) teaches a spacer comprised of, in part, a coating layer (col. 9, line 58- col. 10, line 7; see at least claims 4 and 5) for the purpose of having a device with great thermo-mechanical strength.

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the coating layer as taught by Van into the device of for the purpose of having a device with great thermo-mechanical strength.

**Regarding claim 2**, Martin ('230) the spacer has an electronic conductivity of  $10^{\text{exp}-12}$  to  $10^{\text{exp}-2}$  ohm $^{-1}$ .cm $^{-1}$  ([0016]).

**Regarding claim 3**, Van ('094) teaches the coating comprises Cr<sub>2</sub>O<sub>3</sub>, PbO, Na<sub>2</sub>O, and SiO<sub>2</sub> (see at least claims 4 and 5). The reason for combining is the same as for claim 1. *The examiner interprets this claim limitation in light of the specification.*

**Regarding claim 4**, Van ('094) teaches (claims 4 and 5; col. 9, line 58-col. 10- line 7) the transition element is Cr (see at least claims 4 and 5). The reason for combining is the same as for claim 1.

**Regarding claim 5**, Martin ('230) teaches ([0021]-[0025]) the spacer glass has the following composition, in mol% for a total of 100 mol %:

(A) SiO<sub>2</sub> .....25-75

(B) at least one oxide of a

transition element of Groups IB, IIIB, VB, VIB, VIIB and VIII of the Periodic Table

of the Elements that optionally exist in a number of oxidation states\_as defined in 1-30

(C) A1203 .....0-40

(D) ZrO2 .....0-10

(E) at least one material selected from the group consisting of Li<sub>2</sub>O, Na<sub>2</sub>O and  
K<sub>2</sub>O .....0-10

(F) at least one material selected from the group consisting of MgO, CaO, SrO and  
BaO 0-40

(H) B2O3 .....0-30

(I) P2O5 .....0-5

(J) TiO<sub>2</sub> .....0-10

(K) ZnO .....0- 10

(M) additives .....0-1

(N) impurities .....complement to 1 00 mol%.

**Regarding claim 6**, Van ('094) teaches the coating consists of one layer (col. 9, line 65). The reason for combining is the same as for claim 1.

**Regarding claim 8**, Van ('094) teaches a heating process was used to promote the adhesion or bonding of the coating to the core between the core and the coating. The reason for combining is the same as for claim 1.

**Regarding claim 9**, Martin ('230) teaches (in paragraphs [0044]-[0045]) the spacer core (i.e. the glass matrix) is glass.

**Regarding claim 10**, Martin ('230) teaches (in paragraph [0045]) the glass matrix (i.e. the spacer core) has an expansion coefficient measured between 20 and

300 C. of between 60 and 95 x 10 exp. -7 K exp.-1 and the case of borosilicate-type glass matrices, the expansion coefficient may be between 30 and 50 x 10 exp. -7K exp. -1.

**Regarding claim 11**, Martin ('230) discloses (in paragraph [0044]) the glass matrix (i.e. the glass core) has a temperature corresponding to the strain point of greater than 530°C.

**Regarding claim 12**, Martin ('230) teaches (abstract) the glass spacer has modulus of elasticity of greater than 90 GPa.

**Regarding claim 13**, Martin ('230) discloses ([0021]-[0027]) the glass matrix (i.e. the core) comprises the following composition, in mol % for a total of 100 mol %

(A') SiO<sub>2</sub> .....25-75

(C') Al<sub>2</sub>O<sub>3</sub> .....0-40

(D') ZrO<sub>2</sub> .....0-10

(E') at least one material selected from the group consisting of Li<sub>2</sub>O, Na<sub>2</sub>O and K<sub>2</sub>O .....0-10

(F') at least one material selected from the group consisting of MgO, CaO, SrO and BaO .....0-40

(G') at least one oxide of at least one element selected from the group consisting of Y, La and elements of the lanthanide series ..... 0-25

(H') B<sub>2</sub>O<sub>3</sub> .....0-30

(I') P<sub>2</sub>O<sub>5</sub> .....0-5

(J') TiO<sub>2</sub> .....0-10

(K') ZnO .....0-10  
(L') nitrogen in combined form .....0-20  
(M') additives .....0-1  
(N') impurities .....complement to 100 mol%.

**Regarding claim 14**, Martin ('230) discloses (in paragraph [0041]) the space has a prismatic shape.

**Regarding claim 15**, Martin ('230) further discloses (in paragraphs [0033]) the spacer has an electrical resistance to the flow of current between  $10 \times 10^{-5}$  to 10 G ohms.

**Regarding claim 16**, Martin ('230) teaches (in paragraph [0042]) the spacer has a density of greater than 3.

**Regarding claim 17**, Martin ('230) teaches (in paragraph [0031]) a black color spacer can be obtained.

**Regarding claim 18**, Martin ('230) discloses (in paragraphs [0040]) the spacer is of pillars. Also, (in paragraph [0017]) Martin teaches applying a voltage between two platinum electrodes. In addition, in paragraph [0015] Martin further teaches the electronic conductivity property of the spacers is satisfactory for permitting the removal of charges (thus, it is considered within Martin's disclosure the pillars comprise metal electrode deposited on the sections of the pillars to facilitate the removal of surface charges from the spacer to the electrodes).

**Regarding claim 26**, Martin ('230) discloses (in paragraphs [0001]-[0003]) the device is a display screen, a vacuum glazing and a flat lamp comprising at least two glass sheets (i.e. the two flat substrates).

**Regarding claim 27**, Martin ('230) discloses ([0001]-[0003]) a display screen, vacuum glazing and a flat lamp comprising at least two glass sheets (i.e. the two flat substrates) separated by spacers as claimed in claim 1.

Claims 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al., (US. Pub: 2003/0137230) and Van Gorkom et al., (US. Pat: 5,903,094) hereinafter "Van" in further view of Yamazaki et al., (US. 2002/0123292) of record by the examiner.

**Regarding claim 7**, Martin/Van teach all the claimed limitations except for, the thickness of the coating layer is from 1-10,000 nm.

Further regarding claim 7, Yamazaki teaches ([0131]) a method of manufacturing a spacer comprised of, in part, a glass form in a coating thickness of 200 nm for the purpose of having a device that can suppress surface charging with a low manufacturing cost.

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the glass coating thickness of Yamazaki into the device of Martin/Van for the purpose of having a device that can suppress surface charging with a low manufacturing cost.

#### ***Response to Arguments***

Applicant's arguments with respect to claims 1-18, and 26-27 have been considered but are moot in view of the new ground(s) of rejection.



***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELMITO BREVAL whose telephone number is (571)270-3099. The examiner can normally be reached on M-F (8:30 AM-5:00 Pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Toan Ton can be reached on (571)-272-2303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

November 18, 2008  
/Elmito Breval/  
Examiner, Art Unit 2889

/Joseph L. Williams/  
Primary Examiner, Art Unit 2889